I. Executive Summary

Massachusetts Electric Company and Nantucket Electric Company (collectively "Mass. Electric" or "Company") are filing this report with the Department of Telecommunications and Energy ("Department") in response to several questions that the Department posed with respect to the reliability of the Company's service to customers. The Department's questions focus on how Mass. Electric manages various aspects of its distribution business: growth and weather forecasting; inspection, maintenance, and design of the distribution system; use of emergency generators and other equipment; personnel training, availability, and deployment; and communication and notification procedures. In this report, the Company will describe and assess these components.

Mass. Electric has a strong history of managing its resources and providing low cost, reliable service to customers. Its distribution prices are the lowest in Massachusetts, as much as 14.6% below other Massachusetts utilities. The Company also has a strong service quality record. A 2000 study by PA Consulting Group showed that the Company's reliability record was in the top third of the survey universe, which included thirty-one investor owned utilities.

The Company holds reliable service to customers as a core business value. Since 1984, when the Company initiated a program to provide all employees, union and non-union, an opportunity to earn incentive compensation based on the attainment of a few very important objectives, all employees who in any way can affect service reliability have had a service reliability goal. (The fact that reliability is an all employee goal indicates how important it is to Mass. Electric, because these goals are only for a few very high level objectives. Other goals include safety, attendance, customer satisfaction, and cost per kilowatthour.) The Company's internal goal has improved over time with a ten percent reduction in the average outage duration per customer served, from no more than ninety minutes in 1984 to no more than eighty-one minutes now.

The Company recognizes a strong business imperative to provide reliable service to customers. First, service quality standards provide direct financial penalties for poor performance. Second, poor reliability leads to higher costs for the Company due to increased call volume, increased time on the phone addressing customers' concerns, added efforts required to address increased customer complaints reported to the Department, and increased overtime and use of outside crews for restoration and unplanned maintenance. Third, if customers are not satisfied with Mass. Electric's performance, they may decide to move or not to site additional facilities in our service territory, both of which are unfavorable to the Company's business. Fourth, National Grid's expansion plans, both in the United States and elsewhere, are enhanced by being able to represent itself as a provider of high quality service at low cost.

Every year, Mass. Electric continually devotes significant resources into each of the inputs that comprise a well designed, operated, and maintained distribution system. In its most recent fiscal year, the Company spent $90 million for operations and maintenance of the system and another $89 million for capital improvements. For all inputs, Mass. Electric has extensive training programs and a qualified roster of personnel to perform necessary tasks. Mass. Electric uses a comprehensive, on-going approach to examine its ability to provide quality service. Throughout the years, Mass. Electric has posed similar questions to itself that the Department has raised and has taken positive steps to understand and improve its operations.

On an on-going basis, Mass. Electric carefully monitors reliability performance by distribution circuit to determine which circuits may be reaching the limits of their design capacity or are in need of improvement or replacement to ensure reliability. This data, as well as detailed load forecast information, by area, underlies much of the Company's capital spending decisions.

For the past several years, Mass. Electric has had a substantial capital investment program underway (averaging $95 million per year) while continuing to offer customers the lowest distribution rates in Massachusetts for investor owned utilities. For the current fiscal year (April 2001 through March 2002), the Company has $130 million of capital improvements planned. The $130 million capital budget represents twenty-five percent of Mass. Electric's distribution revenues. Mass. Electric also plans to spend another $130 million on capital improvements next year. The Company is building or making major modifications to seven substations. These investments total $32.1 million and will provide sixteen new distribution feeders to increase load serving capacity and improve reliability. The Company also plans to install thirteen new distribution feeders at existing substations and make significant improvements to the associated distribution systems. Capital improvement projects also include replacing part of the underground cable systems to Cape Ann ($26.2 million) and underground improvements in Worcester ($2.9 million). See Book 1, Attachment 6 for a description of the Company's recent, ongoing, and planned capital improvement projects. In addition, the Company's transmission affiliate, New England Power Company, is making $35 million of capital improvements to the transmission system in Massachusetts this year.

The Company continually takes steps to maintain and improve its reliability by reviewing its practices, the materials and equipment used in the distribution system, and available new technologies. For example, based on these reviews the Company is proposing expansion of life extension methods for underground cable, the use of lightning protection and animal protection equipment and materials, the installation of feeder segmentation equipment, and tree-contact resistant conductors. The Company is making changes to underground switching practices that will improve worker safety and, in the long run, reliability. The Company is expanding the ways it can operate the distribution system by remote control using SCADA (Supervisory Control and Data Acquisition) technology. This expansion will ultimately enable Mass. Electric to obtain better information for use in predicting expansion needs and to allow remote dispatch of the distribution system. The Company is developing a geographic information system, NEEGIS, which, together with existing maintenance systems, will enable the Company to better manage asset utilization and develop more effective asset maintenance and replacement strategies.

As described in Section II, Mass. Electric's reliability in the summer of 2001 suffered primarily because of severe weather. Thunderstorms, with their associated high winds and lightning, caused the majority of outages, and the extended heat wave in August created load levels which resulted in equipment failures, thus impacting reliability. The distribution system experienced a high level of stress during the summer. Peak loads on the system were significantly higher than historical peak load, which created some isolated problems with equipment. The total peak load increase was 12.5 percent. The Company has always used the experience gained from dealing with abnormal weather conditions to review, and modify when necessary, its design standards, construction methods and operating practices. Based upon the experience of this past summer, it has initiated a review of its design standards and construction practices related to lightning protection and has also begun its annual feeder loading reviews, giving special attention to the feeders that experienced overload problems during the summer's heat waves. These steps are designed to help improve future reliability results.

What Mass. Electric has found is that it is the management of all elements of distribution system operations, and not one in particular, that is crucial to delivering reliable, high quality, low cost electric distribution service. In addition, every aspect must be undertaken with safety in mind. With substantial yet finite resources, the Company continually balances the resources that it directs to achieve reliable service. As this report will describe in more detail, Mass. Electric's inputs are as follows:

? **Load Forecasting.** Mass. Electric annually develops a load forecast that incorporates historical load data, knowledge of customers' plans, regional economic data, and weather/temperature trends. Mass. Electric uses the forecast to model the power system under current and expected future load conditions, which enables Mass. Electric to identify potential overload and reliability concerns. Planning engineers then evaluate and develop appropriate solutions. Mass. Electric also reviews individual feeder loadings using the load forecast to identify additional capacity requirements.

? **Weather Forecasting.** Mass. Electric contracts for weather forecasts for its service territory to enhance the Company's preparation for and response to potentially severe weather that could cause service interruptions.

? **Distribution System Design.** Mass. Electric has developed thorough and comprehensive standards for the design, construction, and equipment used to build its distribution system, and educates its employees on these standards.

? **Inspection and Maintenance.** Mass. Electric has procedures for inspection and maintenance of its electric delivery system. Mass. Electric has performance criteria that its system must meet. When any of these criteria are not met, Mass. Electric develops and implements a solution.

? **Use of Emergency Generators and Other Equipment.** Mass. Electric is able to repair an outage in less time than it would take to deliver and prepare emergency generation for operation in most circumstances. Nevertheless, the Company has developed procurement and installation plans for the few circumstances where the time to fix an outage will be prolonged. This situation occurred in 2000 to the Company's Rhode Island affiliate, The Narragansett Electric Company, when a marine accident damaged both supply cables to Jamestown Island. It could similarly happen if simultaneous outages occurred on more than one of the supply cables to Cape Ann or if the single cable to Nantucket was damaged. If Mass. Electric anticipated that the ensuing outage would be prolonged under these circumstances, emergency generation would be appropriate. In April, the Company contracted for six megawatts of portable emergency generation to ensure its availability during an emergency given the tight availability of mobile emergency generation due to the recent California power crisis.

? **Personnel Availability, Training, and Deployment.** Mass. Electric has more than 500 line workers operating out of twenty-five locations throughout the service territory. Mass. Electric has thorough procedures in place to deploy its personnel for both normal operations and outage restoration. In addition, it is able to call on its National Grid USA affiliates for additional help, because the circumstances causing an outage in one area often do not impact another. Once National Grid USA's acquisition of Niagara Mohawk is complete, Mass. Electric will also be able to call on close to 1,000 Niagara Mohawk personnel for emergency assistance. When needed, the Company may request supplemental personnel resources from other investor owned utilities in the United States and Canada through the Edison Electric Institute Mutual Aid Roster. The Company has an extensive training program in which all appropriate employees take part.

? **Communication and Notification.** The Company has established many avenues for various constituencies to communicate with the Company. For individual customers, there is the centralized customer service center in Northborough, which responds to customer calls twenty-four hours a day. For municipal emergency personnel, the Company has telephone lines available at all times to respond to calls, and activates additional dedicated phone lines and resources during major storms and other emergencies. The Company regularly invites its municipalities to meet and review the Company's emergency and storm procedures, including communication methods for emergencies and storms. During major outages, Mass. Electric also works closely with the Massachusetts Emergency Management Agency and municipal officials.

Under the Department's new guidelines, the Company has begun notifying affected municipalities and the Department whenever there is an outage. In addition, the Company makes many filings with the Department regarding reliability. These filings include the annual distribution reliability report filed each April, the report detailing the Company's actions to prepare for the summer capacity situation filed each spring, and the Company's filings on reliability as part of its service quality plan. This report will address each of these inputs to reliable service in greater detail.

In conclusion, Mass. Electric notes that in a concurrent docket, D.T.E. 01-71, the Department is investigating service quality standards and will determine what the appropriate standards are for Mass. Electric. Thus, the Department is reviewing the inputs to the distribution business in this docket, while at the same time determining the method of measuring the desired outputs in the service quality docket. While an examination of the inputs to its reliability performance is valuable, the Company believes it should ultimately be evaluated by the outputs of service, measured by the service quality performance standards that arise out of D.T.E. 01-71. In fact, Mass. Electric is incurring penalties under its current service quality plan in 2001 because its reliability suffered during the summer. Accordingly, the Company is extremely motivated to examine ways to improve its reliability output.

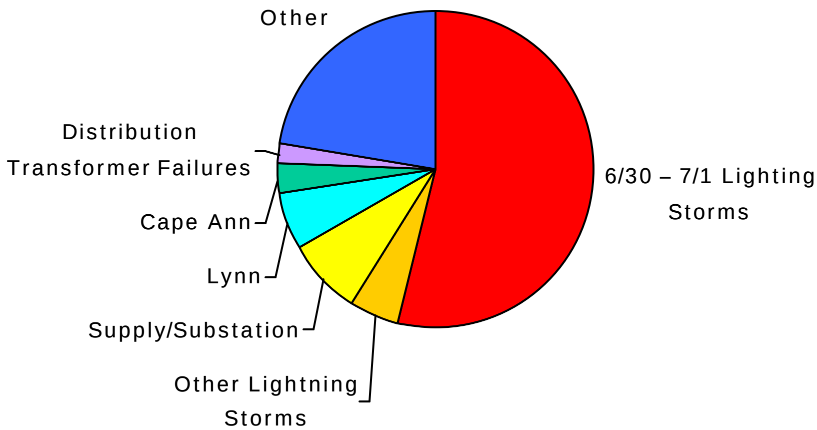
Nevertheless, Mass. Electric understands the need for the Department, as the regulator of electric utilities, to gain a better understanding of how utilities throughout the state are managing their businesses; particularly when a string of publicized outages in various parts of the state may have shaken public confidence. The Company stands ready to cooperate and assist the Department in that endeavor.

II. Mass. Electric Summer 2001 Reliability

In general, over the past five years, Mass. Electric's reliability has remained fairly constant, with the System Average Interruption Duration Index (SAIDI) falling between 75.1 minutes and 87.7 minutes and the System Average Interruption Frequency Index (SAIFI) falling between 1.1 and 1.3.

In the summer of 2001, however, Mass. Electric's reliability did suffer as a result of the weather. Thunder storms, with the associated high winds and lightning, were a major cause of outages and the extended heat wave in August, had an impact on reliability. Starting in June, central New England experienced a series of severe thunder storms which included severe lightning, high winds and torrential downpours. These storms adversely impacted the reliability of the electrical distribution system as fallen trees, tree branch contacts, and lightning caused numerous outages. As is standard practice during major storm restoration, outside crews (in this case, from Hydro-Quebec and Central Maine Power) were brought in to assist Company crews after a severe series of thunderstorms on June 30th and July 1st. During this major storm and its restoration, the average Mass. Electric customer experienced 55 minutes of interruption.

In addition, during the heat wave this past August, peak loads reached record high levels. The total New England load broke the previous record of 22,544 MW established on July 6, 1999 seven times this summer. The new record peak demand for New England of 25,158 MW was established on August 9, 2001. This was 11.6% higher than the previous peak in 1999. The 2001 peak load forecast from ISO-New England was expected to be 23,650 MW (50% probability) while the “extreme weather” projection was 24,750 MW (10% probability). National Grid's peak load on August 9 was 6,476 MW, which was 13.2% higher than the previous 1999 record of 5,723 MW.



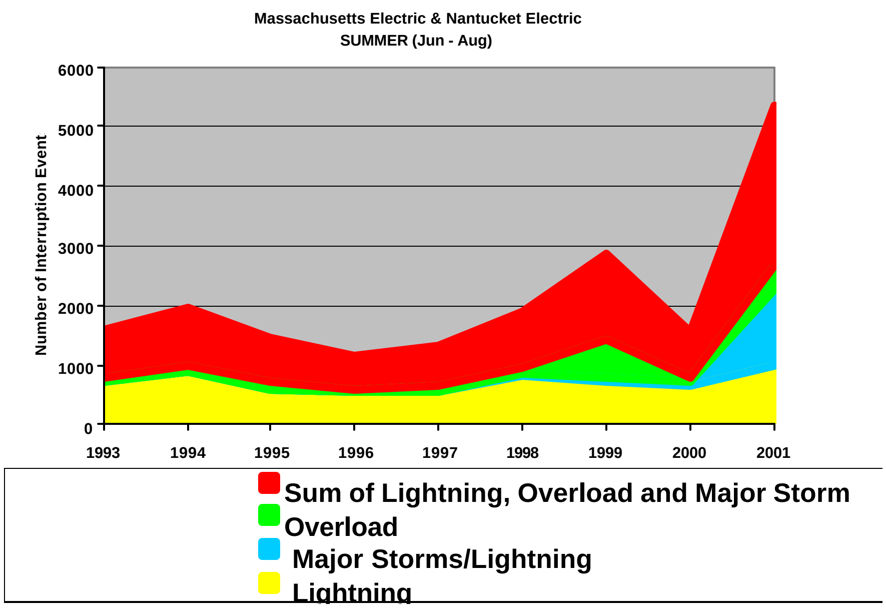
The following chart shows the causes of interruptions during the summer:

The delivery system generally performed well during these unprecedented peak load periods; however, there were localized outages and issues including overloads on portions of feeders and distribution transformers, low voltage to some customers, and one load-related transmission problem. The protracted heat wave in early August broke when a cold front, with a thunderstorm, pushed through the region. Due to the heat wave and thunderstorm activity during the period of August 2 through August 10, the average Mass. Electric customer experienced twenty-one minutes of interruption.

From the beginning of summer, June 21, 2001, through August 31, 2001, Mass. Electric experienced forty-six outages that accumulated more than 500,000 minutes of interruption to customers. This compares to seven such outages over the same period

The chart to the right depicts the effect that lightning and overload-caused interruptions, along with the major storm of June 30 – July 2, had on the reliability of 2001, with respect to the same periods in prior years. As can be seen, these environment-based interruptions caused over a 150% increase in interruption events over the average of the prior years.

last summer. Excluding the effects of the major storm of June 30 – July 1, the average Mass. Electric customer lost service for forty-eight minutes this summer. This compares to an average of twenty minutes during last summer when there was considerably less storm activity and no significant heat waves.



Although the Company believes that its experience with weather this summer was atypical, it will use it to modify the input variables to its planning process to meet future customer requirements. The impact of the thunderstorms this past summer has caused the Company to initiate a review of its design standards and construction practices related to lightning protection. In addition, the summer experience will influence next years' Feeder Loads/Ratings Report, discussed in Section III.

III. Description of Company

Massachusetts Electric Company and Nantucket Electric Company are wholly owned subsidiaries of National Grid USA. They provide distribution service in Massachusetts and are regulated by the Department. Although they are separate companies, they are treated as one company for rate-making purposes.

Other subsidiaries of National Grid USA provide transmission service (New England Power Company) and distribution service in Rhode Island, The Narragansett Electric Company, and New Hampshire, Granite State Electric Company. The four National Grid USA distribution companies coordinate their use of and share resources, giving each benefits that would otherwise be more difficult to obtain. For example, Rhode Island crews may be available for Massachusetts storm restoration. National Grid USA has agreed to purchase Niagara Mohawk, a New York distribution company, which will allow these mutual benefits to extend from that company, also. In addition, National Grid USA Service Company, Inc. provides engineering and operation services, as well as corporate services such as human resources, accounting, and information services, to the retail companies.

With twenty-five operating locations throughout the service territory, Massachusetts Electric Company and Nantucket Electric Company provide service to 1.2 million customers in 170 towns. Book 1, Attachment 3 divides the towns served by district, and Book 1, Attachment 1 is a map of the service territory. Their 2001 peak load was 4,359 megawatts, and their deliveries in 2000 equaled 20,341,778,793 kilowatthours.

Massachusetts Electric Company and Nantucket Electric Company have 714,000 wooden distribution poles, 184,000 distribution transformers, 14,200 circuit miles of overhead distribution lines, 8,600 circuit miles of underground distribution lines, 1,065 distribution feeders, and 339 substations in service.

For the National Grid USA distribution system as a whole, there are 3,252 employees, of which 1,819 are with Mass. Electric, 700 are with The Narragansett Electric Company, 64 are in with Granite State Electric Company, and 669 are with National Grid USA Service Company, Inc. or New England Power Company.

IV. Growth Forecasting

(Department question asked: adequacy of growth forecasting at the community, business district, or neighborhood level)

A. Development of Annual Electric Load Forecast

Mass. Electric develops an electric load forecast annually. The electric load forecast is provided in Book 6 as a confidential exhibit, due to the customer specific information that it contains. This section will discuss how load data, knowledge of customers' plans, general economic data, and weather data create the forecast. It will also address how this summer's actual load compares with the forecasted load.

For the past six years, the Company has been developing a multi-dimensional forecast model. The model employs econometric techniques to define relationships between local economies and load growth. Also, the model takes in Company knowledge of business customers' expansions or contractions. Every summer, the Company updates the model with the prior year's activity and tests refinements to the model.

Mass. Electric has divided its service territory into twenty power supply areas ("PSAs") for load forecasting purposes, and creates an annual forecast for each one.

Book 1, Attachment 2 contains a map of the PSAs within the Mass. Electric service territory. Mass. Electric personnel collect data each month from a network of load recording meters to determine two key load values, the peak load in megawatts for each PSA and the PSA load at the time of the Mass. Electric monthly peak. The model is built to forecast the Mass. Electric coincident peak loads that are then used to forecast the peak load for each PSA.

The forecast model uses variables to develop an econometric relationship for the load of a PSA at the time of Mass Electric's coincident peak. For each PSA, these variables include weather data, an economic index variable, and a series of dummy variables for the unexplained changes in load during certain months. The Company uses the variables to explain variations in historic loads and improve the model's ability to forecast loads. Linear regression techniques create the empirical relationship between the independent variables and coincident peak load. See Book 6, Appendix B for the regression results. As noted above, one of the main drivers of the forecast is an economic index for each PSA. The economic index is developed at the county level for each PSA and is comprised of the number of households, real personal income, and employment. The Company purchases this information, both historical and forecast, from Economy.com (formerly Regional Financial Associates), a well-known national economic forecaster. Because county data only is available on an annual basis, Mass. Electric estimates monthly economic activity in counties, allocating the annual county data to months by using the monthly trends in the Massachusetts economy.

The forecast model considers exogenous events. The introduction or removal of a large load can create local load changes, which an econometric analysis may not capture. For example, the Company may know that a customer proposes to build a facility with five megawatts of projected load in a commercial area that has experienced annual load growth of two to three megawatts in recent years. Planning engineers note these major potential load additions and reductions in their respective areas. The realization of these exogenous events are given a probability of occurrence by the planning engineer who also factors into the forecast any projected timing of the load, if the project extends over several years.

Weather is an important element in the determination of peak loads on Mass. Electric's distribution system. The regression models include the weather experience for either Boston or Worcester as an explanatory variable for peak loads. The weather variables are derived for each peak with minimum and maximum temperatures on the day of the monthly peak load, minimum and maximum temperatures on the day prior to the monthly peak; and minimum and maximum temperatures two days prior to the monthly peak. For the forecast, a normal weather variable is calculated by averaging fifteen years of temperatures as measured above for each month.

Because weather is a very important factor for the level of peak demands reached on the system, the Company calculates two weather based load forecasts. First, a normal weather, or 50% probability peak demand forecast is generated that reflects the average temperatures over the last fifteen years. In addition, an extreme weather, or 5% probability peak demand forecast, is developed using extreme weather conditions (only 1 chance in 20 that temperatures would exceed these values).

The Company compares actual peak loads with load forecasts each year, and analyzes discrepancies between them in order to determine what adjustments to make to the model. Mass. Electric has reviewed the peak loads during the summer of 2001 and determined that its original extreme weather forecast was fairly accurate, only two megawatts higher than actual, which indicates a very robust forecast model. Actual peak load growth would have been 1.6% over 2000 peak demands if normal peak day weather had occurred. Instead, the actual peak demand in the summer of 2001 was a 12.5% increase over 2000.

B. How Mass. Electric uses the Load Forecast

The Company performs electric facility planning studies typically for periods of ten years or longer by modeling the power system under current and future load conditions using the 5% probability extreme weather forecast for load growth. By modeling the power system under current and expected future load conditions, Mass. Electric identifies potential future overload and reliability concerns. Planning engineers develop solutions by reviewing the load conditions in the relevant geographic area and determine the most reliable and cost effective way to meet customers' changing load requirements. The Company begins implementation of projects that the planning engineers recommend be completed in the near term. Planning engineers will review projects that they have recommended for longer term implementation in subsequent study cycles to be sure they are still needed and on what schedule.

Generally, the Company divides the service territory into geographic areas consisting of PSAs or subsets thereof to perform the analyses described above. For example, the Company usually breaks the Merrimack Valley PSA into three smaller study areas because of its large size and high load level. For study areas defined by a PSA, Mass. Electric directly applies the PSA forecast. When the study area is a subset of the PSA, the Company allocates the PSA forecasted load by using the differences in customer use demographics, historical peak load information, and new customer service requests.

The Company performs studies and analyses to evaluate solutions to identified potential reliability concerns and to ensure proper integration of those solutions with the transmission system. Possible solutions include modifications to supply lines, both transmission and subtransmission, substations, and distribution feeders. The Company usually evaluates several supply planning solutions on technical and economic grounds before selecting and implementing a solution.

C. Application of Forecast to Annual Feeder Loading Review

The Company reviews individual distribution feeder load and capability data, along with proposed capacity improvements, in an annual report called the Feeder Loads/Ratings Report. See Book 2, Attachment 2 for a copy of the 2001 report.

The Company obtains peak load data for its approximately 1,000 distribution feeders. The next summer's projected peak load on a given feeder in a particular PSA is calculated by applying the load growth forecast for that PSA. The Company adjusts these projected feeder loads using known incremental load changes and weather factors. As with the development of the electric load forecast and long range planning studies, the Company factors expected large load adjustments into the expected peak that a feeder will experience the next summer. In addition, the Company may adjust the actual peak load experienced to reflect normalized weather conditions. For example, a cool summer will not produce a high peak demand and may mask real growth in customer load. By applying these adjustment factors, Mass. Electric makes the best estimate possible that it will design its facilities to serve the loads under conditions that it reasonably expects will occur.

Next, the Company compares the projected peak load with the capability of the feeder to meet that load level to determine if it needs to make improvements. Based on the Feeder Loads/Ratings Report, the Company develops and implements actions needed to upgrade capacity on a feeder or lower the amount of load served by the feeder by shifting it to a more lightly loaded one in the immediate area. Capacity upgrades can be carried out through the installation of larger cables or overhead wire, known as reconductoring, adding equipment, such as capacitors, or replacing facilities such as circuit breakers, voltage regulators, and transformers with equipment with higher load capability.

Mass. Electric defines potentially overloaded feeders as those expected to have load equaling or exceeding 95% of their normal summer capacity. See Book 2, Attachment 3 for a copy of the Potentially Overloaded Feeder Report. This report presents the planned or recently completed actions to address loading conditions for the feeders identified. Both the Feeder Loads/Ratings Report and the Potentially Overloaded Feeder Report are developed annually to continually monitor and address distribution system loading.

V. Weather Forecasting

(DTE question asked: accuracy of weather forecasting)

A. General

At all times, Mass. Electric wishes to anticipate weather that is likely to cause interruptions to electric service. Accurate and timely weather forecasts assist in making proper resource acquisition and deployment decisions. This section will explain the various sources of weather information gathered by the Company, the ways the Company monitors weather information, the ways in which weather forecasts enhance resource decisions, and how the Company deals with the inherent variability of weather forecasting accuracy.

B. Sources of Weather Information

There are two kinds of weather information, weather data and weather forecasts. Weather data is raw information about weather, such as temperature gradients, isobars, and Doppler radar images. Professional meteorologists analyze the weather data and arrive at a weather forecast. While the Company reviews weather data for indications of upcoming inclement weather, the Company does not do its own forecasting, but instead uses weather forecasts prepared by professional meteorologists.

Mass. Electric obtains and compares weather forecasts from multiple sources. In this way, Mass. Electric increases the likelihood that it will be able to make prudent, weather based, resource allocation decisions. The sources include contract forecasting services, mass media channels, and on-line services, each described below.

Contract forecasting services: The Company's primary provider of weather forecasts on a 24/7 basis is Meteorlogix (formerly Weather Services Corporation) of Lexington, Massachusetts. This service includes custom forecasts posted on the Meteorlogix web site, forecasts faxed at least twice daily to various Company locations, and additional forecasts faxed to the Company in anticipation of severe weather events. The Meteorlogix web site also provides a full range of special weather statements, graphics, data, analyses, and observations for the region. Another key feature of the service is around-the-clock access to certified meteorologists for thorough discussion of any weather situation by any authorized Company employee.

Mass Media: At the threat of a significant weather event, the Company reviews weather forecasts of available major media outlets, including major television networks, certain cable TV stations such as the Weather Channel, and newspapers. These sources provide updated forecasts continuously or at scheduled times, depending on the source, in a form that is intended for public consumption. These types of forecasts are useful for monitoring the overall weather picture.

On-line weather services: The Internet has enabled access to vast resources for weather data and forecasts. These services include real-time data (radar imagery, satellite imagery, lightning detection, Doppler radar, etc.), forecasts, and climate history. While this information is inexpensive to obtain, the forecasts are generic and thus do not meet the Company's need for forecasts customized to the service territory.

C. How Mass. Electric uses weather forecasts

As stated above, Mass. Electric uses weather forecasts to help make resource acquisition and deployment decisions. Ideally, the Company would receive accurate weather forecasts far enough in advance of an actual weather event to allow sufficient time to prepare and implement the appropriate level of emergency response according to established emergency plans. Unfortunately, not all weather events are forecasted accurately. In addition, it is often difficult to anticipate the actual damage that a weather event will cause. Therefore, the Company continually monitors weather forecasts, applies its best judgment, based on years of experience, as to the likely impact of the weather event on the electric distribution system, implements an appropriate level of response according to established emergency plans, and restores electric service as safely and quickly as possible.

D. What happens when weather forecasts are "inaccurate"

A weather forecast typically states the probability of an occurrence over a large area. For example, a forecast might state that there is a twenty percent chance of scattered thunderstorms. In addition, forecasts are based on a vast but limited set of weather observations. Therefore, forecasts will not always be accurate for every location.

In order to address this uncertainty, the Company takes into account the fact that weather forecasts may be inaccurate, and scales up its emergency response if necessary. If a storm restoration requires additional resources (personnel, equipment, materials), Mass. Electric has processes in place to obtain those resources in a timely manner. The Company's ongoing challenges are to implement strategic emergency plans based on historical and likely future experience (i.e. future events are likely to be similar to past events), make strategic preparation decisions based on the best available data (i.e. forecasts), and implement tactical responses based on realized interruptions. This approach applies not only to instances when weather forecasts may be inaccurate, but also to any type of emergency where the Company has to react to unanticipated events.

Mass. Electric's experience this past summer illustrates the limits of weather forecasts as predictors of specific events. _For example, on June 29, the weather forecast for June 30 predicted a chance of isolated afternoon and early evening thunderstorms, with more areas staying dry than seeing storms. (Copies of weather forecasts for June 30 and July 1 are attached in Book 1, Attachment 5.) Early in the afternoon of June 30, the weather forecast predicted scattered thunderstorms that would weaken in the evening. The opposite occurred, however. The weather system intensified during the day, and there were severe isolated thunderstorms by 5:35 p.m. The thunderstorms caused significant outages for Mass. Electric: approximately 47,000 customers were without power at the peak. On the other hand, the forecast for July 1 called for significantly more severe thunderstorms, yet the weather caused far fewer interruptions: 24,000 Mass. Electric customers were without power at the peak.

E. Heat waves

Although it is likely that there will be heat waves, defined as at least three consecutive days of peak temperature reaching 90? F, it is hard to predict far in advance when a heat wave will occur, how hot it will be, how long it will persist, and what the specific impact will be on the distribution system. In addition, there are many difficulties in planning and responding to heat wave-related interruptions. Heat by itself does not necessarily lead to interruptions. Rather, interruptions usually relate to overheated equipment caused by a potential combination of factors, such as ambient temperature, wind speed and direction, dew point, overnight temperatures, and to a large extent the dramatically increased customer loads seen during periods of high ambient temperature. Heat wave outages tend to involve overloaded distribution transformers, overhead wires, and underground cables that fail. Extremely high loading levels can also make it difficult to transfer interrupted customers to alternate sources, resulting in potentially prolonged interruptions once they occur.

Near term preparation for heat waves includes such items as making sure that sufficient quantities of spare transformers and cables are available, closely monitoring equipment loading, reviewing emergency plans, and urging customers to conserve energy and reduce consumption. The ability of Company infrastructure to withstand the detrimental effects of heat waves is a result of the installed capacity being able to meet the requirements dictated by the long term load forecasting. The Company encourages customers to participate in energy efficiency programs and load curtailment programs, such as the ISO-NE pilots implemented this summer. The Company will use its summer experience to inform next year's Feeder Loads/Ratings Report, discussed in Section IV.

VI. Distribution System Design

(DTE question asked: identification of distribution system design flaws that lead to repeated outages on particular circuits, especially circuits that serve critical community facilities (e.g. hospitals, schools, tunnels, etc.)

As described in Section III, the Description of the Company, Mass. Electric has an extensive distribution system, both underground and overhead. Mass. Electric has developed design criteria, material specifications, and construction standards to efficiently and effectively build and maintain its electric distribution system.[1] Mass. Electric reviews and updates the criteria and standards as necessary.

Mass. Electric takes many steps to maintain system reliability, including on-going and annual reviews of outage events to determine required corrective actions, periodic area supply and distribution studies to ensure that the distribution system is adequate to meet the forecasted peak load reliably, and the continuing review of equipment standards, material specifications and construction practices. From time to time, the Company uses consultants to assist in these efforts. Most recently, the Company hired Navigant Consulting in 2000 to perform a strategic assessment of the Company's reliability. See Book 5 for a copy of this assessment. This study analyzed the Company's reliability by feeder, and reviewed mitigation approaches for the main causes of interruption: animals, defective equipment, lightning, supply, and vegetation. Mass. Electric has implemented many of the recommendations.

In the periodic design and planning reviews of supply and distribution, Mass. Electric uses its Guide for Application of the Distribution Design Criteria, Book 3, Attachment 2, to identify and propose corrective actions for distribution system problems and area reliability performance. The Company's threshold for proposing corrective actions to any particular component of the system on a reliability basis is as follows:

1. When a single transmission supply line or major substation transformer outage would result in an interruption exceeding 480 MWH, based upon peak;
2. An interruption caused by a single contingency event on a distribution feeder exceeds 20 MWH; and
3. The annual five year average duration of interruption per customer served, as measured from the primary feeder, excluding severe weather related events, exceeds 200 minutes.

[1] Mass. Electric is not providing a copy of the material specifications and construction standards due to their volume, although copies are available upon request.

Book 3, Attachment 1 contains these criteria. The supply line or substation element criterion identifies potentially large interruptions for a single supply contingency event that require corrective action to maintain the existing supply reliability. The single distribution feeder criterion identifies potentially poorly performing feeders requiring corrective action to maintain the existing distribution reliability. The average duration of interruption per customer served criterion identifies poorly performing feeders that require corrective action on the supply and/or distribution system to improve the reliability of service to customers on those feeders.

The Company uses consistent criteria to identify distribution design issues for all circuits, regardless of the identity of the end-use customer.[2] Once the Company discovers a potential reliability deficiency on any feeder, based upon the criteria noted above, it develops a plan to correct the problem, whether critical facilities are present, or not. Mass. Electric does discuss reliability with critical customers to understand their needs and propose recommendations. These customers may request a higher level of reliability from the Company and pay for additional supply options that are not provided with basic service.

Mass. Electric also uses other annual reviews to identify and correct reliability problems. A computerized outage recording and analysis program, the Interruption Disturbance System (IDS) is the source for the Annual Distribution Reliability Report, which the Company files with the Department. See Book 2, Attachment 1 for a copy of the 2000 Annual Distribution Reliability Report. This report contains statistics and

[2] This differs from the Company's treatment of critical facilities during storm restoration, where the Company makes critical facilities a priority pursuant to the Company's Emergency/Storm Restoration Plan.

identifies outage by cause (trees, lightning, vehicle etc.), defective equipment by class, and problem areas by system (transmission, substation, and distribution). Following this report, the Company identifies the most economic design, maintenance and/or operating action required to improve reliability performance.

In addition, the Company identifies poorly performing feeders at the district level from a review of annual and five-year average frequency of outage exceeding three and/or duration exceeding 200 minutes. Company engineers develop corrective measures, many of which are long term, which are then incorporated into the Company's capital investment plan. See Book 2, Attachment 4 for a copy of the reliability reviews of poorly performing feeders.

As to ad hoc reviews, on request from a district, the Distribution Engineering-Standards group will review current construction standards for problem equipment and update and revise these standards as necessary. Past reviews have resulted in changing specifications for fuse cutouts and construction standards for spacer cable. In addition, the Company regularly issues Standards-Bulletins to address known construction problems.

In recent years, Mass. Electric has experienced significant load growth. Thus, Mass. Electric has embarked on a substantial expansion of the distribution system in order to provide reliable service consistent with these standards and criteria. Mass. Electric has had a substantial capital investment program underway for the past several years, spending an average of $95 million over the past five years. This current fiscal year, the Company has $130 million of capital improvements planned, which represents about twenty-five percent of Mass. Electric's distribution revenues. Mass. Electric also plans to spend another $130 million next year. The Company is building or making major modifications to seven substations. These investments total $32.1 million and will provide sixteen new distribution feeders to increase load serving capacity and improve reliability. The Company also plans to install thirteen new distribution feeders at existing substations and make significant improvements to the associated distribution systems. Capital improvement projects also include replacing part of the underground cable systems to Cape Ann ($26.2 million) and underground improvements in Worcester ($2.9 million). See Book 1, Attachment 6 for a description of the Company's recent, ongoing, and planned capital improvement projects. In addition, the Company's transmission affiliate, New England Power Company, is making $35 million of capital improvements to the transmission system in Massachusetts this year.

VII. Inspection and Maintenance of Distribution Plant

(DTE questions asked: adequacy of overall and particular community maintenance practices and of equipment and spares to meet outage-restoration demands; cost/benefit assessment of establishing a program of periodic inspection of both above-ground and underground distribution plant to be conducted by personnel who are dedicated to inspection)

A. General

As described in Section III, Mass. Electric's distribution system is large, with 714,000 poles, 22,800 circuit miles of distribution lines, 184,000 transformers, and other associated equipment. These components require maintenance to perform as intended. This section will describe Mass. Electric's inspection and maintenance programs for distribution equipment and assess their effectiveness.

B. Inspection and Maintenance of Distribution Substations

Mass. Electric maintains distribution substation apparatus in accordance with the Company's Electrical Maintenance Standards (EMS), which set forth in detail for each type of apparatus what should be checked and the tests to perform for the check. The EMS are attached as Book 7. There are many types of inspections: visual, operational, diagnostic, internal, and acceptance. See Book 7, pp. 31-33 for a description of these inspections. The Company performs a visual and operational inspection of every substation at least every two months, and performs these inspections on certain critical facilities more often. The employees who perform the inspections make the repairs that they are capable of making at the time of inspection. The EMS also provides detailed information on how to perform the inspections and tests. This approach provides uniform and measurable standards for inspection and maintenance of substation apparatus.

The Company has developed a Maintenance Priority System (MPS) in order to prioritize over 9,000 pieces of equipment for inspection and maintenance based on a variety of factors, including the interval since the last diagnostic and internal inspection, the number of operations since the last inspection, the number of fault operations, and other items. See Book 7, pp. 19-20. Some inspections occur on a periodic basis, such as annual infrared inspections of critical substations, in which the Company identifies temperature anomalies that could indicate or lead to equipment failures. See Book 3, Attachment 3 for a sample report. The Company then takes follow-up measures to avert future problems. The Company performs other inspections when a combination of factors, such as time, operations, and fault operations, together indicate that an inspection is warranted.

C. Inspection and Maintenance of Overhead Plant

The overhead distribution system is extensive and requires a significant and focused maintenance effort. There are several different programs in place.

The Company uses the Maintenance Priority System for certain electrical apparatus, including line reclosers and line voltage regulators. The Company has a separate program for line capacitor banks, which are inspected twice annually in advance of the summer and winter peak loading seasons.

A major component of maintenance of the overhead distribution system, and one that has a direct impact on reliability, is the Company's vegetation management program. This program is a feeder based program, with an $8.5 million budget in fiscal year 2001.

In addition, the Company visually inspects the mainline of feeders annually, which enables the Company to monitor the effects of the everyday occurrence of mechanical and electrical stresses from factors such as weather, animals, vegetation growth, and age. Because the Company can detect the vast majority of potential problems visually, before an interruption results, the Company has not needed to perform diagnostic testing.

Personnel well versed in distribution construction practices conduct these inspections, or "feeder patrols." They use standardized forms, designed to enable efficient and accurate data entry, and cover issues such as tree trimming needs, blown lightning arresters, transformers and side-taps without fuses, deficient poles and crossarms, conductor and insulator problems, and other potential construction deficiencies. Depending on the nature of noted concerns, follow-up is directed to appropriate personnel to resolve. Book 8 provides feeder patrol sheets for the last twelve months. As these sheets indicate, the feeder patrols result in finding and repairing many items. Over 100 employees participate in these patrols.

The Company often performs additional inspections on the overhead distribution system to address particular issues. For example, the Company may perform an infrared inspection of feeders when they exhibit certain performance characteristics and visual inspections do not reveal problems. Infrared inspections typically identify overheating conditions that if left unattended could result in failed equipment and a subsequent interruption. In addition, the Company often performs inspections on step-down transformers to verify that the transformers are not approaching an overloaded condition. The Company inspects all subtransmission poles, which are typically in rights-of-way, on a ten year cycle, and replaces or reinforces them as necessary. These poles are critical in that they supply substations that in turn supply many customers. Finally, for the past few years, the Company has performed construction audits to ensure that new construction is performed in accordance with the Company's Distribution Construction Standards.

The Company intends to implement a targeted pole replacement program for distribution poles. (The Company co-owns most of its poles with Verizon.) Because wood pole failure due to deterioration accounts for a very small number of interruptions, as shown in Book 3, Attachment 4, this program will review specific factors effecting operating life, such as pole age, geographic location, pole loading, reliability impact, replacement cost and wood condition. The ability to capture pole data easily and efficiently is required to implement this program. The Company is currently putting into place a geographic information system (NEEGIS) that will provide the capability to implement a targeted pole replacement program. Mass. Electric is initiating this system one district at a time, with the first district scheduled for implementation in the beginning of 2002.

D. Inspection and Maintenance of Underground Plant

The underground system is far more difficult to inspect than the overhead system. Access is limited due to the underground location, required safety measures (including atmospheric testing, manhole rescue precautions, traffic control, pumping), and lack of effective diagnostic procedures that will not either cause customer interruptions or equipment stress. In addition, the same attributes that make underground equipment for the most part impervious to the environment in which they operate often render non-invasive inspection techniques ineffective. For example, underground cables are designed to be sealed against moisture and water intrusion using combinations of polyethylene jackets, lead sheaths (on older cables), and intricate splicing techniques. Other equipment, such as submersible transformers, oil fuse cutouts, and vacuum switches are mechanically sealed. In order to perform electrical tests on this equipment, the protective and insulating systems would need to be breached and stressed, potentially weakening their integrity. Therefore, other methods and approaches to underground inspections are warranted.

Some of the inspections currently performed on underground plant include:

1. Underground vaults are inspected.

2. Manholes are inspected/documented prior to entry and work being performed

3. Oil fuse cutouts (4kV submersible disconnect switches) are visually inspected whenever manhole entry is made. Replacement decisions can sometimes be made based on appearance (deterioration, rust).

4. Network protectors, network transformers, and padmounted switchgear are inspected based on the MPS Critical Number.

5. Cathodic protection (corrosion prevention) systems are inspected periodically.

6. Infrared inspections of select underground circuit components, such as elbows, separable connectors, pre-molded splices, when appropriate, or when looking for common failure modes.

The Company intends to begin an underground improvement initiative. This initiative will target areas that exhibit repeat failures and high operating costs and will focus on equipment such as oil fuse cutouts, cathodic protection, grounding, and and a life extension process for underground cross-linked polyethelyne cable. In addition, it will review practices across the Company's districts to determine if any additional opportunities exist to improve or strengthen maintenance practices.

E. Cost/Benefit Analysis of Dedicated Inspectors

The Department has requested a cost/benefit analysis on whether employees should be hired and exclusively dedicated to inspection of the system. As previously explained, Mass. Electric inspects the major elements of its system periodically without using employees dedicated solely to inspection. Mass. Electric believes that this is the most cost effective way of handling the need for inspection. When weighing the respective benefits of the various inputs to running a distribution system, Mass. Electric does not believe that a dedicated inspection team would be an efficient use of resources. Instead, Mass. Electric supports the use of a highly skilled and flexible workforce trained to do a variety of assignments related to the distribution system.

VIII. Use of Emergency Generators and Other Equipment

(DTE question asked: aptness of plans to deploy emergency generators and other equipment to restore critical service or ease prolonged interruptions)

A. General

Because prolonged outages are not acceptable, the Company keeps certain spare equipment on hand if it would otherwise take months for failed equipment to be repaired or replacement equipment to be manufactured and delivered. In a very few instances, the Company and its affiliates have identified scenarios where the loss of supply to a particular area would best be temporarily remedied by installing mobile emergency generation, because the repair of the failed equipment would take extended periods of time.[3] In Massachusetts, the Company currently has identified Cape Ann and Nantucket as places where this scenario could possibly occur. In addition, this section will explain some of the relevant issues regarding critical spares and mobile emergency generation.

B. National Grid's experience with Emergency Generation

Mass. Electric and its affiliates have on occasion developed plans to deploy emergency generators to areas where there was a realistic possibility that an outage could

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[3] The Company notes that many medical facilities are required by law or regulation to have their own emergency back up generation, including hospitals (520 CMR 12), areas serving mothers and newborns (105 CMR 130.625), freestanding AIDS hospice facilities (105 CMR 141.299), dialysis facilities (105 CMR 145.291, long term care facilities (105 CMR 151.830), and convalescent and nursing homes (M.G.L. c. 111, § 72C).

occur that would take several days or longer to repair. For the very limited number of areas where such concerns exist, Mass. Electric and its affiliates developed comprehensive plans that would result in emergency generators being procured and deployed in the affected area in order to restore service several days in advance of completing permanent repairs. The Company has a contract in place for six megawatts of emergency mobile generation should the need arise. The Company is also able to lease emergency generators for outages that have the potential to be prolonged. Mass. Electric's Rhode Island affiliate, The Narragansett Electric Company, encountered the unexpected need for emergency generation in June of 2000 when a cruise ship dragged its anchor across the two submarine cables supplying Jamestown Island in Newport Harbor and cut the supply to the island. In response, Narragansett Electric leased and deployed seven mobile emergency generators, ranging in size from 600kW to 1,750kW, on the island. Narragansett Electric repaired one cable and restored service to the island before the generators could have been energized, but Company engineers planned to energize and synchronize the generators in case another failure rendered the repaired cable inoperable. The generators, though never energized, were kept in place for two months until the permanent repairs were made.

C. Emergency Generators

Mass. Electric has contracted with a vendor for six MW of mobile diesel generators for use anywhere in the service territory. Mass. Electric is currently engaged in on-going discussions with the Department of Environmental Protection to ensure compliance with air quality and noise regulations, and believes that it will be able to resolve these issues. In general, as with Jamestown Island in Rhode Island, Mass.

Electric restores most of its interruptions more quickly than it could develop, implement, and test an emergency generation solution. In fact, in nearly all cases the resources required to install emergency generation would be best directed to restoring electric service instead.

D. Cape Ann

Cape Ann is an example of where the use of mobileemergency generation might be appropriate. Mass. Electric delivers Cape Ann's electric supply by threeunderground 23 kV cables and two overhead 34 kV overhead circuits. These supply lines generally extend from East Beverly to Gloucester, a distance of approximately eleven miles. The overhead 34kV circuits are constructed along streets, and the 23kV underground cables are direct buried and for the most part alongside the commuter rail line.

In the late 1990s and into 2000, the Company performed an extensive analysis of the cable and its ability to provide reliable service for both current and projected future loads. The Company was concerned about the increasing number of failures that were occurring on one of the 23kV underground cables. After a careful analysis of the situation, including failure mode analysis, laboratory investigation of the components of the actual cable, and a review of industry experience with this particular cable design, the Company concluded that the cable could not be expected to provide the desired level of reliable service in the future. The Company performed a planning analysis and concluded that it needed to construct new underground facilities to address both the immediate reliability concern of the deteriorating cable and expected load growth. Mass. Electric will not install the new cable along the commuter rail as the current one is, but will install it in the streets in a manhole and duct system from East Beverly to Gloucester.

Mass. Electric will install the new cable in phases, and anticipates completing the first phase by next summer. This first phase will replace a section of the failing 23 kV system from the West Gloucester substation to the Gloucester substation. At the same time, The Company will install an underground extension of one of the existing 34 kV circuits in the new underground system to serve the area's increased load.

Because of the long lead time required to complete new underground facilities, Cape Ann continues to face the potential of existing cable failures and service interruptions during the next year. In order to minimize the impact of these events, Mass. Electric has developed a contingency operating plan, which gives guidance to Company personnel during cable outages. In addition, in order to mitigate the impact of a possible longer-term outage of the problem cable, Mass. Electric has arranged for the use of portable emergency generation, as discussed above. Accordingly, in the event of a long-term cable outage, Mass. Electric will be able to have the mobile generators delivered and set-up in less than twenty-four hours.

E. Spare equipment

The Company maintains an inventory of spare equipment in quantities that it has determined through experience to be sufficient to address reasonably foreseeable failure scenarios. This equipment includes distribution and substation transformers, circuit breakers, equipment bushings, voltage regulators, poles, conductors, and all types of auxiliary equipment. See Book 3, Attachment 5. In addition, the Company maintains a substantial inventory of portable emergency spares such as mobile substations, mobile transformers, mobile circuit switchers, battery trailers, and transmission structures. Book 3, Attachment 6 identifies the mobile equipment and certain spare transformers and their deployment as of Oct 5, 2001. The Company also has a formal relationship with a large electrical supply company which can quickly source material form other parts of the country in case of emergency.

The Company keeps track of this material and equipment on a computerized database. When the Company needs spare equipment, it queries the database to determine specific apparatus specifications to meet the particular application and storage locations. In addition, the Company can poll other electric utility companies for the availability of spare equipment, should the need ever arise.

The installation of portable emergency spares is a relatively routine, though infrequent occurrence. For instance, in the year 2000 there were three power transformer failures that necessitated the removal of the failed units, installation of either a mobile substation or spare transformer, and ultimately the installation of the repaired or new units. Mass. Electric has the capability in-house to perform these tasks or calls upon specialty vendors to assist.

Although there the summer’s failures were higher than those of past summers, the Company did not exhaust any of its supply of spares required to meet the summer’s needs.

IX. Personnel Training, Availability, and Deployment

(DTE questions asked: identification and description of all training programs for employees engaged in electric service operation and restoration efforts; soundness of personnel availability and work-crew call-up and deployment procedures to respond to outages; adequacy of employee staffing levels for operation and maintenance of the distribution system, including inspection staffing levels)

A. Training

Mass. Electric's employees who are involved with electric service operations and restoration efforts receive substantial training throughout their careers. Training is both formal and informal.

The Company has a state of the art training center in Millbury where it runs programs on both overhead and underground distribution systems. Book 9 shows summary information for all of the Millbury training programs. Formal training programs focus on several themes, such as safety methods, work methods, technical skills, environmental procedures, computer applications, and general knowledge. Training programs are also directed to accomplish specific purposes, such as progression training for apprentice workers. During calendar year 2000, the Company's eleven full-time instructors, supplemented by part-time instructors and guest trainers, taught 134 subjects in a total of 984 sessions. These sessions ranged from a few hours to several weeks. In total, the center hosted 70,090 hours of training to 2,448 people. Book 9 provides additional statistics on employee training. In addition to holding classes for its own employees, the Millbury training center has also held training sessions for employees of several other utilities and municipal light departments. The Company also trains employees at the district offices and at job sites prior to implementing a particular procedure.

B. Availability and Deployment

Mass. Electric's first response to any interruption comes from the district in which the interruption occurs. The initial crew responding to any interruption is usually the Trouble Worker (or Trouble Shooter) assigned to cover a particular area in the district during a particular shift. A Trouble Worker is a single person crew specially trained to be able to restore service interruptions due to a wide variety causes. Virtually all of Mass. Electric's service territory is covered 24/7 by on-duty Trouble Workers.

If the Trouble Worker requires assistance, or if the number of interruptions is too large for the on-duty Trouble Worker(s) to handle, the Company calls in additional crews from the district. If this occurs during normal working hours, another on-duty district crew will assist. If this occurs outside of normal working hours, the centralized Trouble Center Operator in Northborough will call in district crews using the Company's Autocall system. Autocall is a network-based computer application that automatically determines the next person to be called according to the call list, automatically dials the telephone, and records whether the person is able to report to work. Autocall was developed in-house and has been extremely useful in streamlining the process of obtaining crews off-hours.

If the individual district resources are insufficient to remedy the interruptions, the Company obtains resources from outside the district. Initially, the additional resources come from within the Company and its affiliates. The geographic diversity of the service territory of the Company and its affiliates enables the Company and its affiliates to share resources for localized weather events effectively. If this resource is not sufficient, the Company calls in independent contractor crews, and, for widespread interruptions, the Company obtains supplemental resources from the other investor owned utilities in the

United States and Canada through the EEI Mutual Assistance Roster, which lists contact information and the quantities of crews potentially available. Hundreds of crews are potentially available from this process. Once National Grid USA's acquisition of Niagara Mohawk is complete, Mass. Electric will also be able to call on close to 1,000 Niagara Mohawk personnel for emergency assistance.

The Company was able to obtain sufficient resources to respond to outages during the summer of 2001. The Company used crews from outside the district needing restoration and outside crews four times, for the weekend of June 30/July 1, the thunderstorms on August 3, the heat wave during the week of August 6, and thunderstorms on August 10.

C. Staffing Levels

Mass. Electric has a total of 669 electric physical workers, which includes 473 overhead workers, 83 underground workers, and 113 substation workers, based on September 2001 actual employment levels. In addition, Mass. Electric's work force is supplemented by an additional 262 overhead workers, 30 underground workers, and 118 substation workers from its affiliated companies. The Company can assign personnel in one district to another as necessary, and can also call upon its affiliates for personnel resource needs, both for daily and emergency work. The Company continually reviews its staffing levels and resource allocations in view of evolving needs.

The Company supplements its own employee work force with outside contractors to perform peak work. Over all, the staffing levels are adequate for the operation and maintenance of the distribution system, as demonstrated by the Company's overall reliability. When these levels are not adequate in a particular restoration effort, such as during extreme weather or due to inordinately low call-in response rates, the Company utilizes the measures detailed previously in this Section to provide adequate resources. Current merger plans with Niagara Mohawk will provide strengthened opportunities for mutual assistance for the combined companies with a larger and more geographically diverse resource pool.

X. Communication and Notification Procedures

(DTE question asked: appropriateness of communications and notifications procedures (including accurate and realistic updates) during outage and storm recovery, both internal to the company and between the company and municipalities, affected neighborhoods, political leaders, and regulators)

A. General

Communication, both internal and external, during electric service restoration is important and challenging. When there are large numbers of customers and communities out of service, communication and restoration must both continue to occur. The Company has communication and notification procedures in place to give stakeholders the best available information during an event. This section will describe Mass. Electric's communication and notification procedures.

B. Communicating Outage and Restoration Information Generally

Other than the communication procedures described below for municipal officials pursuant to the Plan, the Company notifies municipalities whenever there are outages, as directed by the Department and set forth in Mass. Electric's October 1, 2001 letter to the Department. See Book 4, Attachment 1. In addition, there are communication procedures in place for individual customers. Customer service representatives located at the Company's Customer Service Center in Northborough speak directly with customers, receive reports of interruptions and trouble conditions, and provide any information that is known about the interruption. This center is operated twenty-four hours a day, seven days a week. Mass. Electric's phone system allows customers to report an outage or trouble condition without speaking to a customer service representative through the Company's voice response unit. This is an automated interruption reporting system that uses the telephone number of the account to identify the customer that is without power or needs to report a trouble condition. In addition, during emergencies, additional employees throughout the National Grid organization supplement customer service employees on phones. Outage reports from customers are recorded by the Company's Automatic Service Response System ("ASRS"). The internal process by which this information is disseminated is shown on Book 4, Attachment 2. This process occurs for all interruptions, not just those caused by storms or other emergencies.

C. Emergency Planning Process

Many of Mass. Electric's procedures for communication and notification grow out of Mass. Electric's Emergency/Storm Restoration Plan ("Plan"), Book 10. This Plan sets forth the procedures for electric service restoration generally, and includes internal and external communications. Book 10, pp. 27-54.

The plan details emergency operations at the system-wide and district levels of the Company. The Company follows the Plan whether the restoration effort will be large or small. Mass. Electric implements particular elements of the Plan depending on the specific requirements of an outage. It has been in place for many years, and the Company revises it each year to reflect changing resources and processes.

At the system level, the Plan sets forth procedures to assess the overall damage to the distribution system, obtain resources to perform restoration promptly and efficiently, allocate and track resources assigned to districts, continuously monitor restoration progress, and communicate effectively with stakeholders. Specific elements of the corporate Plan include

- Corporate emergency organization
- Corporate strategies for emergency response
- Contact information and emergency assignments for corporate-level personnel
- Emergency activities occurring at the corporate level
    - System Emergency Room set-up and processes
    - System-level damage assessment and outage monitoring
    - Supplemental resources acquisition and assignment
    - Communications with Company executives
    - Communications with regulators
    - Communications with media
    - Communications with state and federal agencies
    - Emergency assignments for corporate-level personnel
    - Communications with transmission group
- Training programs related to emergency assignments
- Computer applications and forms to facilitate emergency activities
- Critique process

At the district level, the Plan sets forth procedures to perform restoration of interruptions safely, efficiently, and effectively; ensure logistical support for all personnel associated with the restoration; communicate resource needs to System Emergency Room; and communicate restoration status to municipal officials, the System

Emergency Room, and the Company's Customer Service Center located in Northborough. Specific elements of the district Plan include:

- District and satellite office emergency organization
- Public and employee safety
- District personnel emergency assignments
- Emergency activities occurring at the district level:
    - Damage assessment and resource needs
    - Crew and resource assignments
    - Crew safety and orientation
    - Crew management (work assignment, staging areas, meals & lodging)
- District emergency procedures
- Telephone numbers, addresses
- Vehicle assignments
- Key vendors: materials, staging areas, hotels, restaurants
- Municipal contacts
- Materials lists

Mass. Electric performs dry-run exercises every year. These exercises focus on particular scenarios in order to test, verify, and modify the planning efforts. For example, during the summer of 2001, the Company's dry-run exercise involved a load shedding scenario resulting from a capacity shortfall. In 2000, the Company's exercise modeled the response to a large hurricane.

D. Communicating the Company Emergency Plan

The Company informs internal and external stakeholders about the Plan and its processes each year. Within the Company, Mass. Electric distributes it to Company managers, district personnel, and other employees who are likely to have specific emergency assignments relating to the Emergency Plan. Virtually all employees of Mass. Electric and its affiliates have been given emergency storm assignments, managed through its SEAL program, or Storm Emergency Assignment Listing. Outside of the Company, Mass. Electric distributes the system-wide portion of the Plan to the Department and the Massachusetts Emergency Management Agency.

Mass. Electric's district personnel hold meetings with municipal emergency response officials to familiarize them with the Plan. At these meetings, they provide a copy of the Plan to the municipalities. At the municipal meetings, the Company updates the list and contact information of key municipal personnel. In addition, the Company reviews the ways in which municipalities can contact the Company during emergencies. These include:

?? Police and Fire Telephone lines: The Company provides dedicated telephone numbers to all municipalities for the sole purpose of reporting emergency conditions that require prompt attention. These numbers are always staffed, either by the district during working hours or by the Northborough Trouble Center during off-hours and are the quickest way for municipalities to contact a Company representative for assistance in an emergency situation.

?? Municipal Contact Telephones: During major emergencies, the Company activates Municipal Contact Telephones in what the Company refers to as the district "Muni

Rooms." Employees assigned to staff the Muni Rooms are able to assist with municipalities' issues.

?? Account Managers: Each municipality has a designated Account Manager in the Business Services Department who is available to be contacted at any time by telephone, cell phone, or pager.

?? Customer Service Center: Customers may telephone 800-322-3223 the Northborough Customer Service Center at all times to report outages and trouble conditions. This information is entered into the Company outage management system.

Book 4, Attachment 3 contains a presentation provided at an October 23, 2001 meeting in Mass. Electric's central district.

E. Emergency Plan Implementation

When the Company believes that an upcoming storm or other emergency event will cause Customer interruptions, the Company implements appropriate elements of the Plan. As shown in Book 10, page 16, the Company has divided events into three categories. For each category step, the response escalates:

Class 1 event: Localized outages; resources available within the district are able to perform full restoration. Typical implementation includes:

?? District Emergency Plan implemented;

?? District management and crews mobilized (No outside assistance required)

?? Contact made with affected municipalities.

?? Status of interruptions communicated with management, media, Customer Service Center, Northborough Trouble Center

<u>Class 2 event</u>: One or more districts involved; at least one district requires outside assistance, whether crews or other support. Unaffected districts send assistance. In addition to actions taken for Class 1 above, typical implementation includes:

?? System Emergency Plan implemented;

?? System Emergency Room activated;

?? Personnel and resources sent from unaffected or less affected districts to provide assistance;

?? District Muni Room activated for areas with substantial interruptions;

?? Satellite offices in the district may be activated open as needed;

?? Staging areas, meals, and lodging facilities activated.

?? District Wires Down process implemented (as needed);

?? Additional customer service representatives assigned to answer telephone call from customers.

<u>Class 3 event:</u> Multiple districts involved, resources needed from outside of the Company to facilitate restoration in a timely manner. In addition to the actions taken for Class 1 and Class 2 events above, typical implementation includes:

?? District Muni Rooms activated;

?? Additional staging areas activated;

?? Additional personnel, not normally involved with emergency restoration (employees identified and trained for emergency assignments, and tracked using the SEAL (Storm Emergency Assignment Listing) database).

F. Life Support Customers

The Company has special procedures in place for disseminating information to "Life Support Customers," who have a medical condition that requires electric service.

See the Emergency Operating Plan for Capacity Situations, Book 4, Attachment 4, pp. 59, 68, 79-83, 88. At least annually and prior to the summer peak loading system, customer service representatives telephone previously identified customers and solicit information regarding new ones to get information about their individual medical needs and inform them of how they could be affected by load shedding. In addition, customer service representatives contact these customers in advance of major forecasted storms to recommend that they consider implementing their back-up plans in case service is interrupted.

G. Summary

The following chart summarizes what information is communicated between the Company and various stakeholders, and how it is communicated:

Stakeholder Group	Typical Information Communicated Between Company and Stakeholder Group	Company Communication Channels
Customers	?? Report power outages ?? Report trouble conditions ?? Request estimated restoration time	?? Customer Service Representative ?? Voice Response Unit (VRU) (for reporting outages and trouble) ?? Account Manager (for business customers)
Municipal Officials	?? Information on all interruptions affecting municipality ?? Restoration estimates ?? Potentially long-duration interruptions ?? Public safety emergencies ?? Local resources to assist with restoration (i.e. DPW to sand or clear roads)	?? DTE Outage Notification Protocol ?? Account Manager ?? Muni Rooms (major events) ?? Police & Fire lines
MEMA	?? Interruption information for State ?? Restoration estimates ?? Potentially long duration interruptions ?? Public safety emergencies ?? State or Federal resources to assist with restoration (i.e. National Guard)	?? System Emergency Room ?? MEMA Coordinator (Company employee located at MEMA headquarters during major events)

	?? Relief from DOT regulations ?? Assistance moving crews from outside of state or country	
DTE	?? Information on all interruptions ?? Restoration estimates ?? Resource statistics (crews working, work locations, etc.) ?? Potentially long duration interruptions ?? Public safety emergencies	?? DTE Outage Notification Protocol ?? DTE Coordinator (located at Northborough CSC) ?? System Emergency Room
Media	?? Interruption information for select communities ?? Restoration estimates ?? Resource statistics (crews working, work locations, etc.) ?? Newsworthy events ?? Photo opportunities	?? Corporate Communications Department ?? Account Manager
Employees	?? Interruption information for Company ?? Restoration estimates ?? Resource statistics (crews working, etc.) ?? Public safety emergencies	?? Storm Line (recorded message providing Company-specific restoration updates) ?? Company Managers (via email or direct communication)
Police & Fire Departments	?? Interruption information community ?? Restoration estimates ?? Potentially long duration interruptions ?? Public safety emergencies ?? Locations of downed wires and other trouble conditions	?? Police & Fire lines

H. Additional Communications to the Department

For the past several years, the Company has provided the Department with a report documenting the actions it has taken to prepare for the oncoming summer. A copy of the 2001 report is attached Book 3, Attachment 7**.**

XI. Conclusion

This report has set forth the extensive resources that Mass. Electric devotes to each of the inputs that make up a successful distribution system. Mass. Electric has a strong commitment to low-cost, reliable service for customers, and is managing its resources effectively in order to give customers that service.